



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/554,400

10/24/2005

Yuki Yokoyama

050417

4602

23850 7590 12/22/2009
KRATZ, QUINTOS & HANSON, LLP
1420 K Street, N.W.
Suite 400
WASHINGTON, DC 20005

EXAMINER

MUSTAFA, IMRAN K

ART UNIT

PAPER NUMBER

3663

MAIL DATE

DELIVERY MODE

12/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/554,400	Applicant(s) YOKOYAMA ET AL.	
	Examiner IMRAN MUSTAFA	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-12,14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-11, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudat (US 2004/0210370) in view of Kochi (US 2003/0004645).

As to claim 1 Gudat discloses a device for giving indications to the operator of a work machine which works on a construction surface of a current work object, monitoring at least one reference marker located in the vicinity of the construction surface(Paragraph), characterized in comprising:

an acting component of the work machine that acts directly on the construction surface of the current work object (Paragraph 29);

a measurement device which monitors the construction surface, the acting component located in the vicinity of the construction surface to measure the position of the construction surface, of the current work object (Paragraph 8) located in the vicinity of the construction surface, and the position of acting component (Paragraph 29) located in the vicinity of the construction surface, while said work machine is performing work (Paragraph 29)

a virtual line calculation unit to calculate a virtual line corresponding to a construction surface target line that is to be formed by the acting component (Paragraph 29 Figure 3);

a display data creation unit to create display data to display images indicating the positions of at least said construction surface and said virtual line, on the basis of said positions measured by said measurement device and said virtual line calculated by said virtual line calculation unit(Paragraph 29); and

a display device to receive said display data from said display data creation unit and displaying said images to the operator on a display screen (Paragraph 29, 40).

Gudat does not explicitly disclose of a reference point detection unit to detect two reference points corresponding respectively to two reference markers included in said plurality of reference markers located in the vicinity of said construction surface. Kochi however teaches of a plurality of reference markers located in the vicinity of the construction surface(Paragraph 68) and of a reference point detection unit and to detect two reference points corresponding respectively to two reference markers included in said plurality of reference markers located in the vicinity of said construction surface(Paragraph 67-68) and calculating a virtual line from the two reference points a virtual line passing through the two reference point and corresponding to a construction surface target line that is to be formed by the acting component(Paragraph 87-88). According to KSR (F) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

As to claim 2 Kochi teaches a device that characterized in that said display creation unit creates said display data in such a manner that an image is displayed which also depicts the position of said plurality of reference markers in addition to the positions of said construction surface and said virtual line(Paragraph 64).

As to claim 3 Gudat discloses a device characterized in that said measurement device is disposed in such a manner to move or turn direction in unison with said work machine, when said work machine moves or turns direction, whereby, even if said construction surface moves due to said work machine moving or turning direction, the positions of said construction surface and the located in the vicinity of said construction surface are measured(Paragraph 26) and an image indicating the positions of said construction surface and said virtual line is displayed (Paragraph 29).

Kochi teaches of determining the positions of said plurality of reference markers on a continuous basis (Paragraph 64, 67-68, 87). It would have been obvious to determine the positions of the plurality of reference markers with the motivation of providing the operator with accurate position data.

As to claim 4 Gudat discloses a device that said measurement device determines the positions of said construction surface and said plurality of reference markers on a continuous basis (Paragraph 26), whereby the images indicating the positions of said construction surface and said virtual line are displayed on the screen substantially in real-time (Paragraph 29)..

Gudat does not explicitly disclose of determining the positions of said plurality of reference markers on a continuous basis. Kochi teaches of determining the positions of

Art Unit: 3663

said plurality of reference markers on a continuous basis (Paragraph 64, 67-68, 87). It would have been obvious to determine the positions of the plurality of reference markers with the motivation of providing the operator with accurate position data.

As to claim 5 Kochi discloses a device characterized in that said reference point detection unit detects a position satisfying prescribed geometrical conditions, from the positions of said construction surface and said plurality of reference markers measured by said measurement device, as said reference point(Paragraph 64, 67-68).

As to claim 6 Kochi teaches a device that said reference point detection unit detects a position specified by said operator, from the positions of said construction surface and said plurality of reference markers measured by the said measurement device, as said reference point(Paragraph 64, 67-68).

As to claim 8 Gudat discloses a device characterized in further comprising: an acting component detection unit for detecting the position of the acting component which acts on said construction surface (Paragraph 20);

wherein said display creation unit creates said display data creation unit creates said display data in such a manner that said images depict the position of said acting component in addition to the positions of said construction surface and said virtual line, on the basis of the position of said acting component detected by said acting component detection unit (Paragraph 29).

As to claim 9 Gudat discloses a construction target indicator device in that said acting component detection unit detects the position of said acting component from the

Art Unit: 3663

positions of said construction surface, and said acting component measured by said measurement device(Paragraph 26);.

Gudat does not explicitly disclose of determining the positions of said plurality of reference markers on a continuous basis. Kochi teaches of determining the positions of said plurality of reference markers on a continuous basis (Paragraph 64, 67-68, 87). It would have been obvious to determine the positions of the plurality of reference markers with the motivation of providing the operator with accurate position data.

As to claim 10 Gudat discloses a device characterized in further comprising an acting component position correction unit for correcting the position of said acting component detected by said acting component detection unit, by means of a prescribed offset amount(Paragraph 20);

Wherein said display data creation unit creates said display data in such a manner that an image is displayed which depicts the corrected position of said acting component in addition to the positions of said construction surface and said virtual line (Paragraph 29), on the basis of the position of said acting component corrected by said acting component position correction unit (Paragraph 29).

As to claim 11 Gudat discloses a device characterized in that displacement sensors for measuring the displacement of a plurality of components of said work machine are provided in said work machine(Paragraph 20); and

said acting component detection unit detects the position of said acting component on the basis of the displacement of said plurality of components measured by said displacement sensors (Paragraph 20);

As to claim 14 Gudat discloses a method for giving indications to the operator of a work machine which works on a construction surface of a current work object characterized in comprising the steps of:

monitoring the construction surface and the acting component of the work machine that acts directly on the construction surface of the current work object, located in the vicinity of the construction surface;

measuring the position of a construction surface, which is a current work object, , and the position the acting component located in the vicinity of the construction surface, while said work machine is performing work (Paragraph 26).

a virtual line corresponding to a target surface that is to be formed by the acting component (Paragraph 26, 29); and

Creating an image indicating the positions of at least said construction surface and said virtual line, on the basis of said measured position and said calculated virtual line (Paragraph 29)

providing a display screen (Paragraph 29), and

displaying said image on the display screen (Paragraph 29);

Gudat does not explicitly disclose of a reference point detection unit to detect two reference points corresponding respectively to two reference markers included in said plurality of reference markers located in the vicinity of said construction surface. Kochi however teaches of a plurality of reference markers located in the vicinity of the construction surface(Paragraph 68) and of a reference point detection unit and to detect two reference points corresponding respectively to two reference markers included in

Art Unit: 3663

said plurality of reference markers located in the vicinity of said construction surface(Paragraph 67-68) and calculating a virtual line from the two reference points a virtual line passing through the two reference point and corresponding to a construction surface target line that is to be formed by the acting component(Paragraph 87-88).

According to KSR (F) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

As to claim 15 Gudat discloses a device comprising a laser distance measurement device that irradiates a laser beam and continuously changes the angle of elevation of the a laser beam at a prescribed cycle to scan the laser beam through a scanning region(Paragraph 24-26).

As to claim 16 the claim is interpreted and rejected as in claim 15.

As to claim 17 Gudat discloses a device wherein the work machine is an earth working machine and the work object is earth (Paragraph 40).

As to claim 18 the claim is interpreted and rejected as in claim 17.

As to claim 19 Gudat discloses a device comprising an input device whereby the operator enters a designated reference point corresponding to a reference marker (Paragraph 34-35).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gudat (US 6,736,216) in view of Kochi (US 2003/0004645) and in further view of Yokota (US 2002/0183924).

As to claim 12 Gudat discloses a device characterized in that said display data creation unit creates display data for displaying an image which shows a view of the positional error between said construction surface and said virtual line(Paragraph 29),

Said display device displays said image by receiving said display data from said display data creation unit (Paragraph 29).

Gudat does not disclose of displaying an emphasized image on the display. Yokota, however, displays an emphasized image of the display data (Paragraph 40) in response to a request from the operator. It would have been obvious to one skilled in the art to have the ability to have an enlarged display with the motivation of allowing the user to see the data more easily.

Response to Arguments

3. Applicant's arguments filed 9/18/2009 have been fully considered but they are not persuasive.

On page 1 of the applicant's response applicants argue that Kochi does not disclose that the virtual line is calculated based on any reference point.

The examiner respectfully disagrees with the applicant's arguments. The applicant is reminded that the examiner interprets the claim with the broadest reasonable interpretation. Kochi clearly teaches of calculating a virtual line based on a reference point(Paragraph 68, Figure 3 see reference point, 88 "three-dimensional display image in the real image/virtual image observing section 110, the ***initial ground shape data represent the solid lines*** while the ***target data represent the broken lines*** in FIG. 9. Here, the target data represent a truncated pyramid, with the initial

Art Unit: 3663

ground shape data representing a raised piece of ground greater than the shape represented with the target data. As the construction goes on, the shape of the ground changes as shown in FIGS. 10 and 11. FIG. 10 shows the status at the beginning of the construction when a side corresponding to the target data has appeared as a sloped side of the object, the raised piece of ground. FIG. 11 shows the status in the course of the construction when most part of the truncated pyramid, the target shape, has appeared. Thus, the construction may be executed to the natural ground while being compared with the target data-based shape"). Thus as can be seen Kochi does indeed teach of the calculation of virtual line based on any reference point.

On page 3 of the applicant's arguments applicants argue that there is no disclosure in Kochi of any reference markers; there is no selection of any reference markers to obtain Kochi's reference points, and there is no selection of just two of any points or markers.

The examiner respectfully disagrees with the applicant's arguments. The applicant is reminded that the examiner interprets the claim with the broadest reasonable interpretation. Kochi clearly teaches of using reference markers(See at least Figure 3 "252 Auto-tracing Surveying Instrument") and of a reference point detection unit to detect the reference points corresponding to the two reference parkers(See at least Figure 3 "Reference point", Paragraph 13 "shape measuring section 350 for measuring shape data of an object from a pair of stereovision images of an object taken with an image taking section 220; an imaging position measuring section, corresponding to ***an automatic tracing type of surveying instrument 252***

and a camera position taking section 250, for measuring the position where the image taking section 220 takes images of the object”). Thus it is clear that Gudat in view of Kochi discloses the claimed invention.

On page 3 of the applicant's arguments applicants argue that the position of the acting component is measured and this is not disclosed by Kochi.

The examiner respectfully disagrees with the applicant's arguments. Gudat clearly discloses of monitoring the position of the acting component (“Paragraph 29 “The current terrain 304 and the desired terrain provide the operator of the earth working machine 102 with a reference for comparison. An icon 312 of the earth working machine 102 and an icon 314 are provided on the display 312”). Thus it is clear that Gudat in view of Kochi discloses the claimed invention.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMRAN MUSTAFA whose telephone number is (571)270-1471. The examiner can normally be reached on Mon-Fri 7:30AM-5:00PM, Alt Fri, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

12/15/2009

/Jack W. Keith/
Supervisory Patent Examiner, Art Unit 3663